

DoD Policy Board on Federal Aviation

Office of the Secretary of Defense - Joint Chiefs of Staff – USNORTHCOM - Army – Navy – Marine Corps – Air Force

DoD UAS Operations in the National Airspace System



Lt Col Dallas Brooks
Chief, Unmanned Aircraft Systems
Integration Policy





Overview

- **PBFA Organization**
- **Sight Picture**
- **Tool Sets for Integration into the US National Airspace System (NAS)**
 - **Airworthiness**
 - **Airspace**
 - **Operations**
 - **Technology**
- **Current DoD Efforts**
- **Proposed Milestones/Recommendations**





DoD Policy Board on Federal Aviation



- **DoD Policy Board on Federal Aviation**
 - **Established in 1960's**
 - **DoD conduit for policy issues**



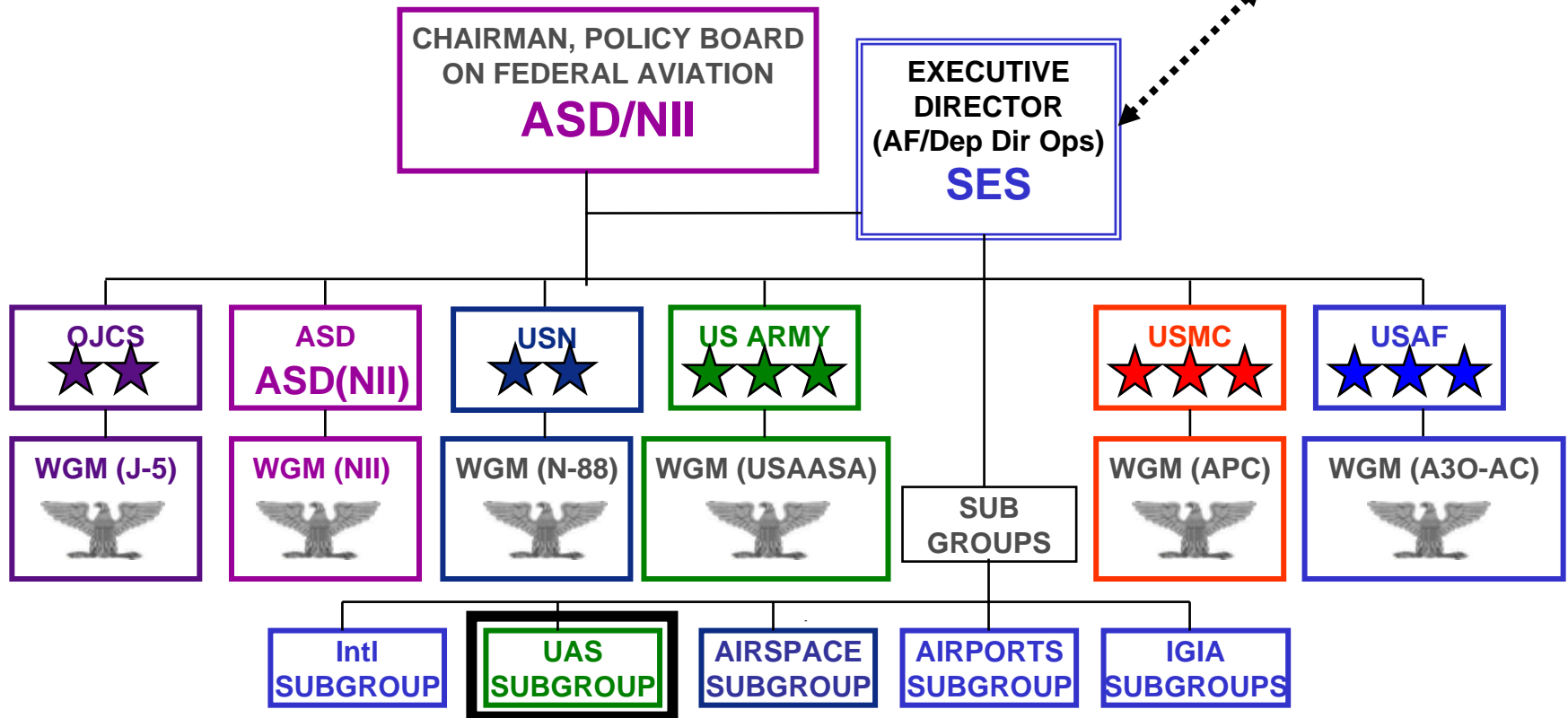
- **Services work operational issues directly with the FAA and other Air Navigation Service Providers**



DoD Policy Board on Federal Aviation Organization



ATC, AIRSPACE, AIRPORT, and other ISSUES





DoD Aviation Sight Picture

- DoD is a operator of aircraft, user/manager of airspace, provider of air traffic services to all users, and is a regulator of ops and aviators
- Domestic and international coordination with FAA/ICAO

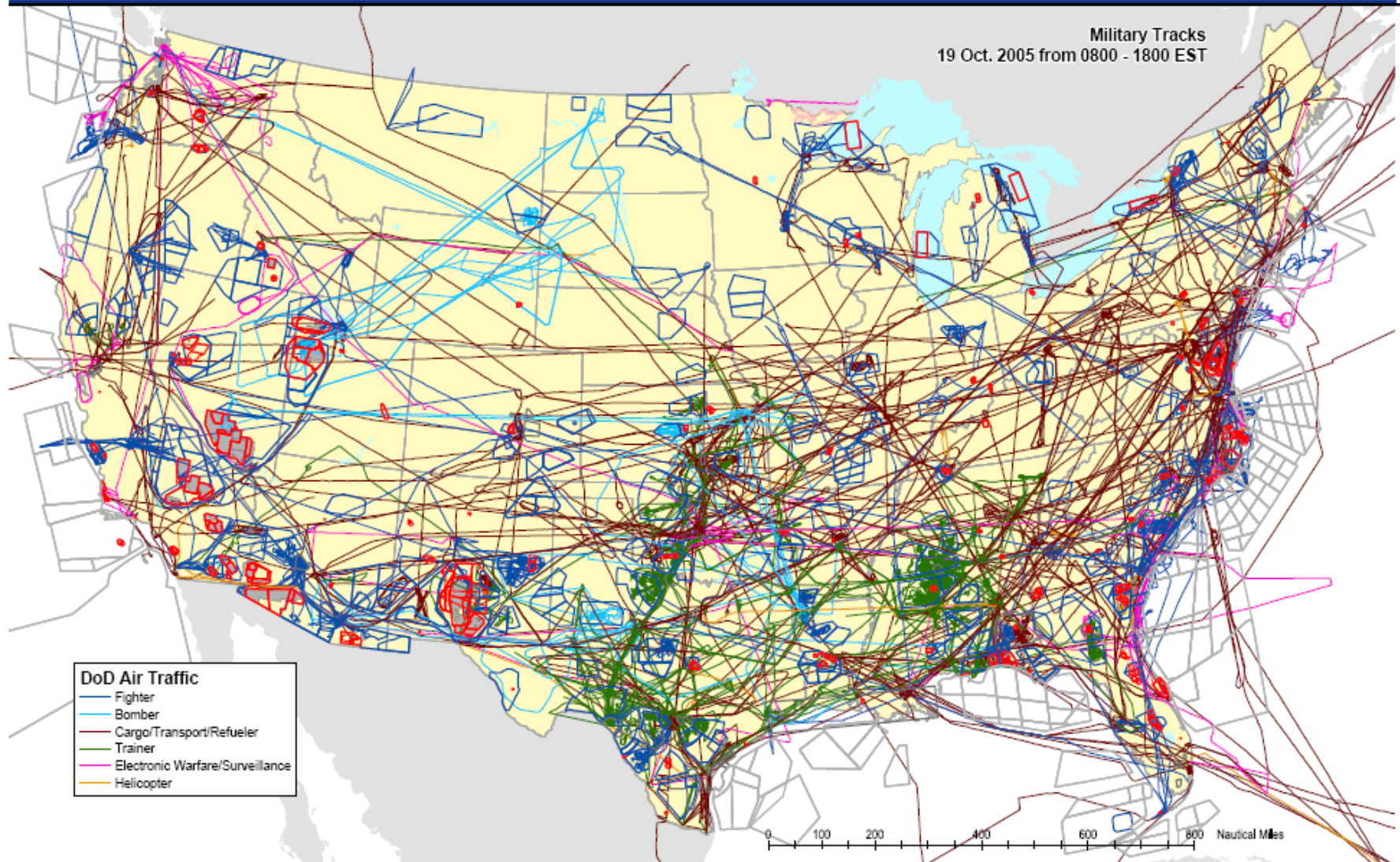


- In the US, 7000+ Military controllers provide for 16.9M operations
 - Includes 4.3M civilian ops (e.g. NAS Pax River, MCAS Yuma, Ellsworth AFB)



Current Environment

U.S. Military Flights





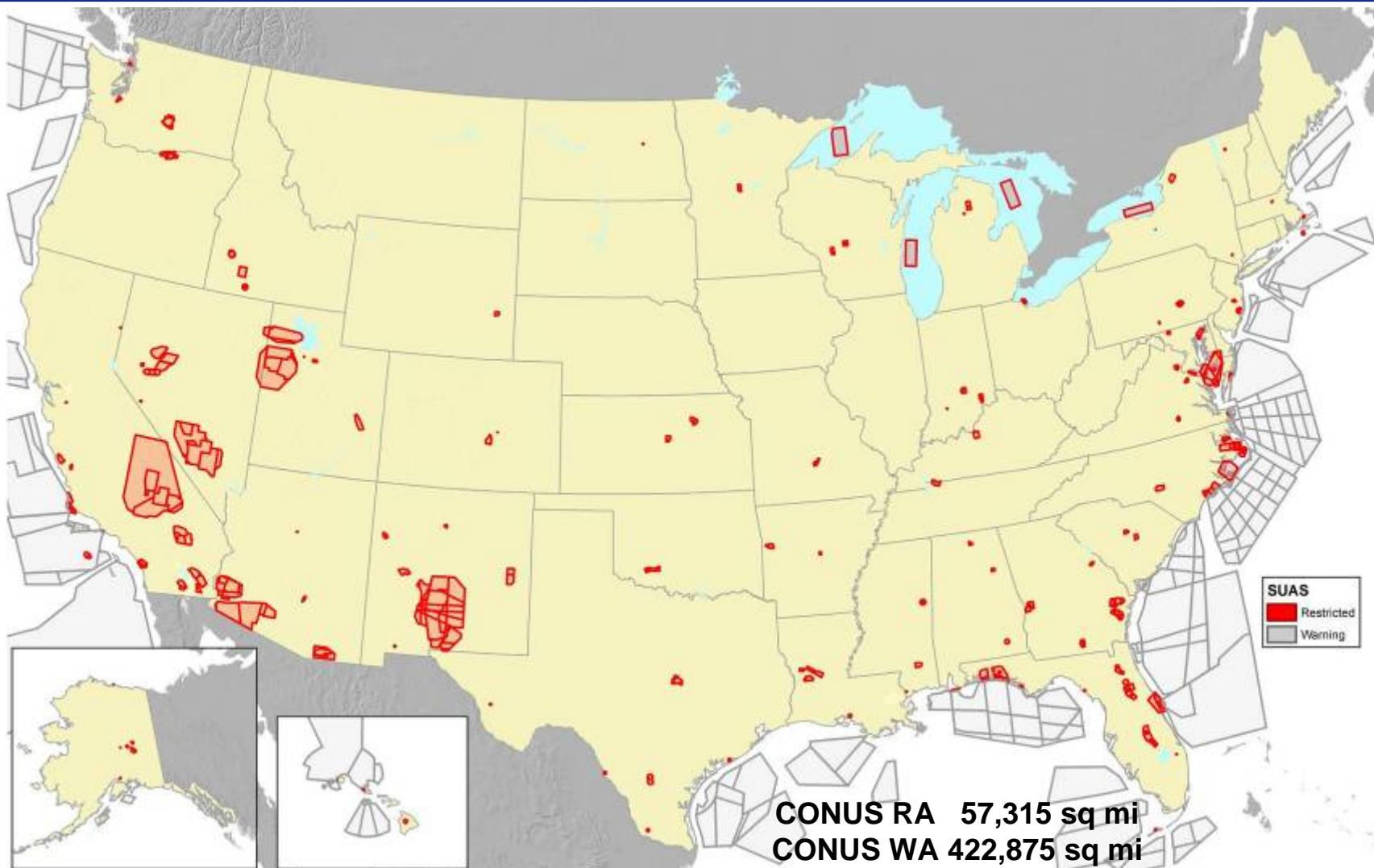
Special Use Airspace and Training Routes





Current UAS Environment

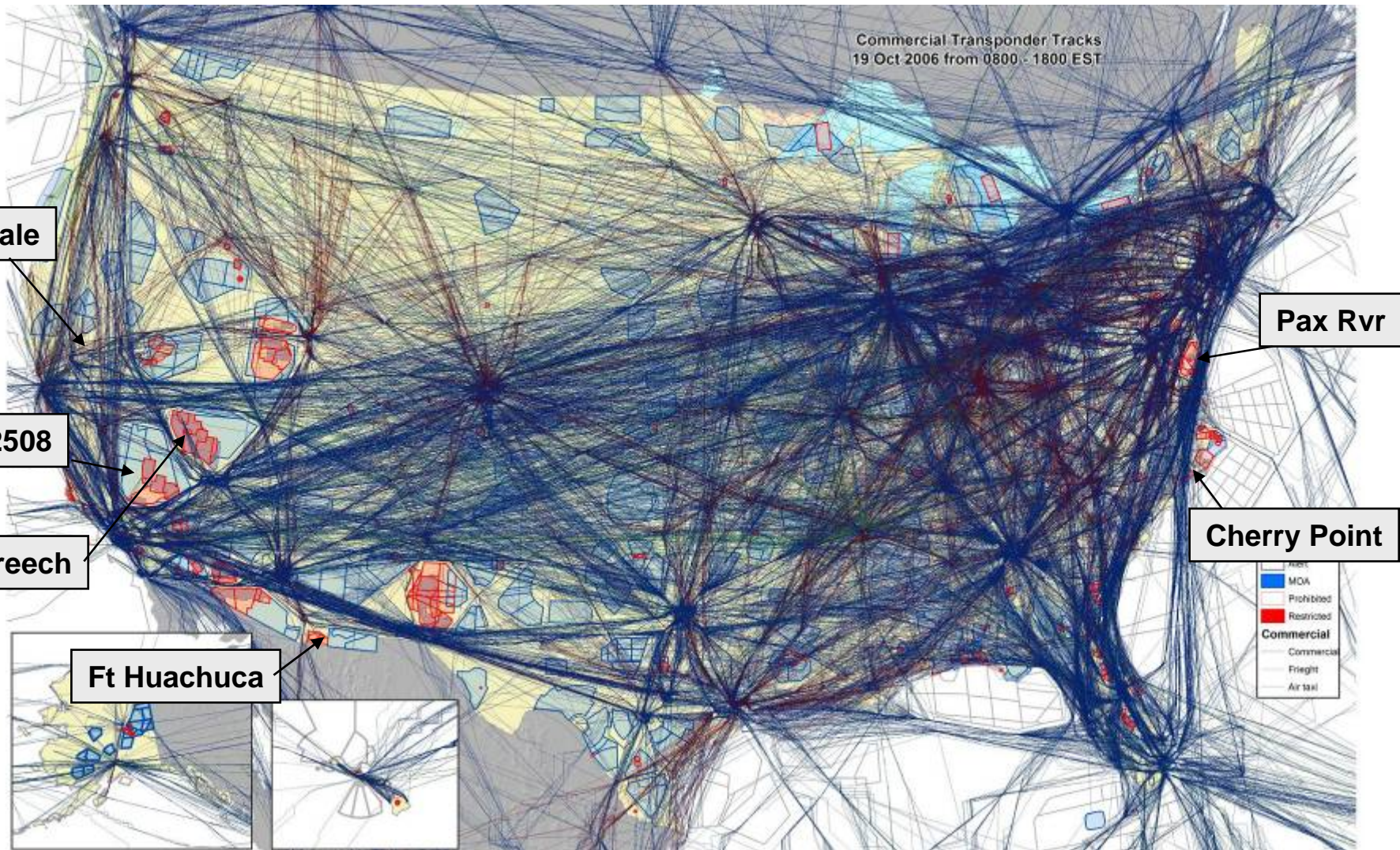
U.S. Restricted/Warning Areas





Current Environment

U.S. Commercial Flights





Current UAS Process/Ops

In addition to Restricted/Warning Areas

- **Certificate of Authorization (CoA) -- 75 last year**
 - **Allows flight in NAS for specified platforms/routes**
 - **Majority of UAS ops outside of Restricted/Warning areas are by CoA**
 - Predator flights in Nellis MOAs
 - Marine UAS ops at Cherry Point
 - Navy Global Hawk ops at Patuxent River
 - **FAA has ramped up CoA processing**
 - Processing/approval times steadily improving
- **Temporary Flight Restriction - mostly used for airspace above ground activity (POTUS, Super Bowl, wildfires, etc.)**
 - Places restrictions on airspace during UAS flight
 - Last option -- used when other solutions aren't appropriate and mission is a "must do"
 - Global Hawk flights from Beale and DHS Predator flights along the US/Mexico border



Current UAS Process/Ops

In addition to Restricted/Warning Areas

- **24 Sep 07: DEPSECDEF signs PBFA-authored DoD/FAA Memo of Agreement on UAS Ops**
 - **DoD UAS: Operations in Class D airspace at DoD-controlled, non-joint-use airfields**
 - **Provision: Standardized ATC/separation procedures**
 - **Small DoD UAS (20 lbs or less): Operations in Class G (surface to 1200' AGL) over DoD bases, ranges, and lands**
 - **Total: Over 30,000 NM² of accessible NAS airspace**





Current UAS Process/Ops Guidance

- 24 Sep 07 DEPSECDEF Memo
 - Created Joint Working Group (PBFA)
 - Ops/Air Traffic procedures
 - Enables Class D access authorized in DoD/FAA MoA
 - Draft Class D procedures complete, FAA comments received



DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

SEP 24 2007

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARY OF DEFENSE FOR
ACQUISITION, TECHNOLOGY AND LOGISTICS
UNDER SECRETARY OF DEFENSE FOR POLICY
UNDER SECRETARY OF DEFENSE FOR
PERSONNEL AND READINESS
UNDER SECRETARY OF DEFENSE FOR
INTELLIGENCE
COMMANDER, UNITED STATES NORTHERN
COMMAND
COMMANDER, UNITED STATES PACIFIC COMMAND
COMMANDER, UNITED STATES SOUTHERN COMMAND
ASSISTANT SECRETARY OF DEFENSE FOR NETWORKS
AND INFORMATION INTEGRATION/DOD CIO
GENERAL COUNSEL OF THE DEPARTMENT OF
DEFENSE

SUBJECT: Memorandum of Agreement for Operation of Unmanned Aircraft
Systems in the National Airspace System

The attached Memorandum of Agreement between the Department of Defense (DoD) and the Federal Aviation Administration (FAA) is an important, but interim, step in allowing DoD unmanned aircraft systems (UAS) improved access to domestic civil airspace. It is now incumbent on the Military Departments to develop the corresponding operational and air traffic procedures necessary to take full advantage of this agreement.

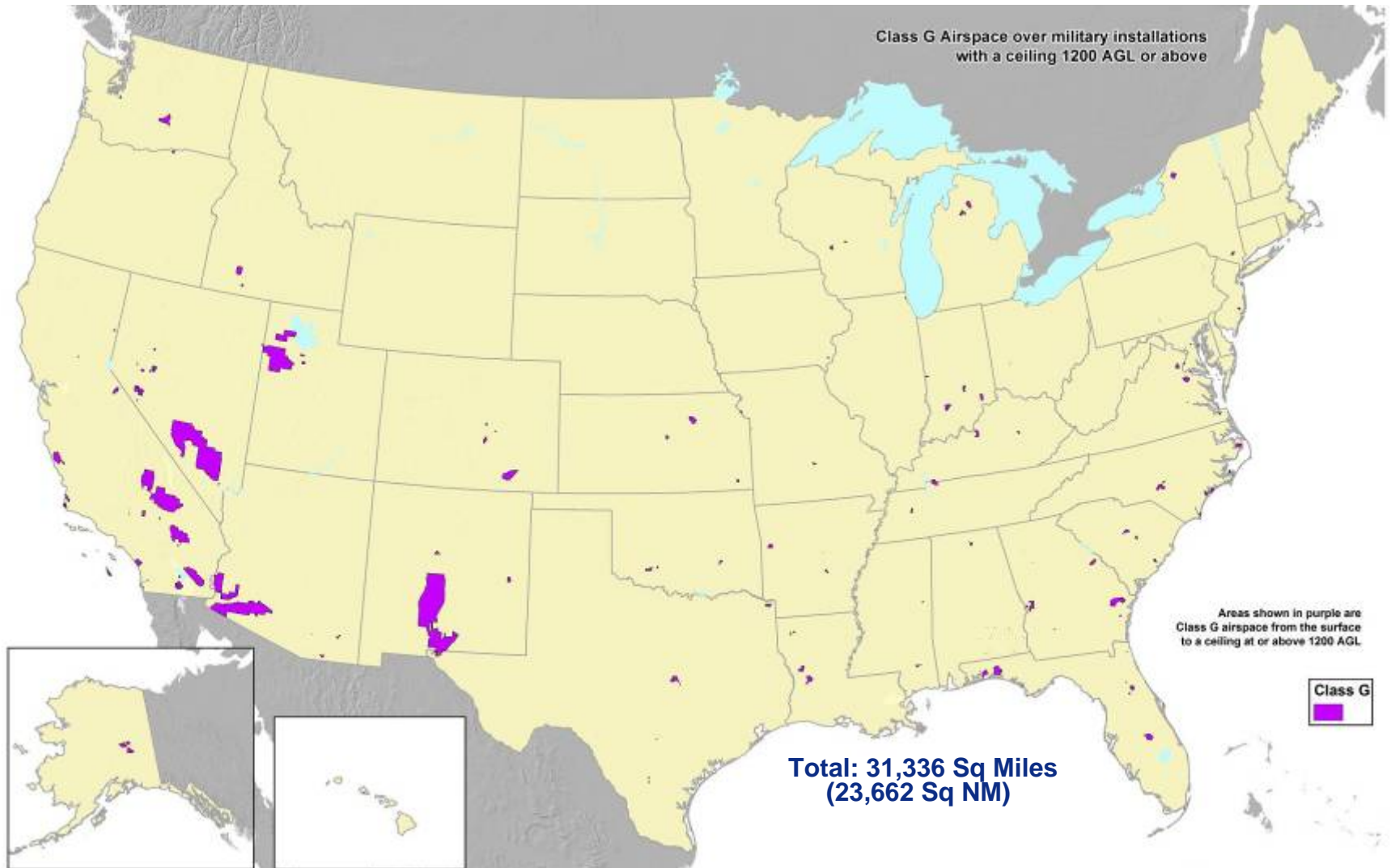
Although each Service will exercise a degree of flexibility in implementation of this agreement based on the unique nature of the service's UAS training and operational needs, it is critical that baseline operational and air traffic procedures be created in a joint environment to maximize and safety, as well as economize the efforts across the DoD and with the FAA. To effect this, the Executive Director, DoD Policy Board on Federal Aviation (PBFA) is directed to create a joint working group, composed of both operational and air traffic service representatives, to standardize and formalize air traffic control and operational procedures for UAS.

Each Service is requested to nominate one operational and one air traffic services representative, at the O-6 level or below, for participation in this group to the Executive Director, PBFA, by 30 September 2007. The group will commence its efforts on or about



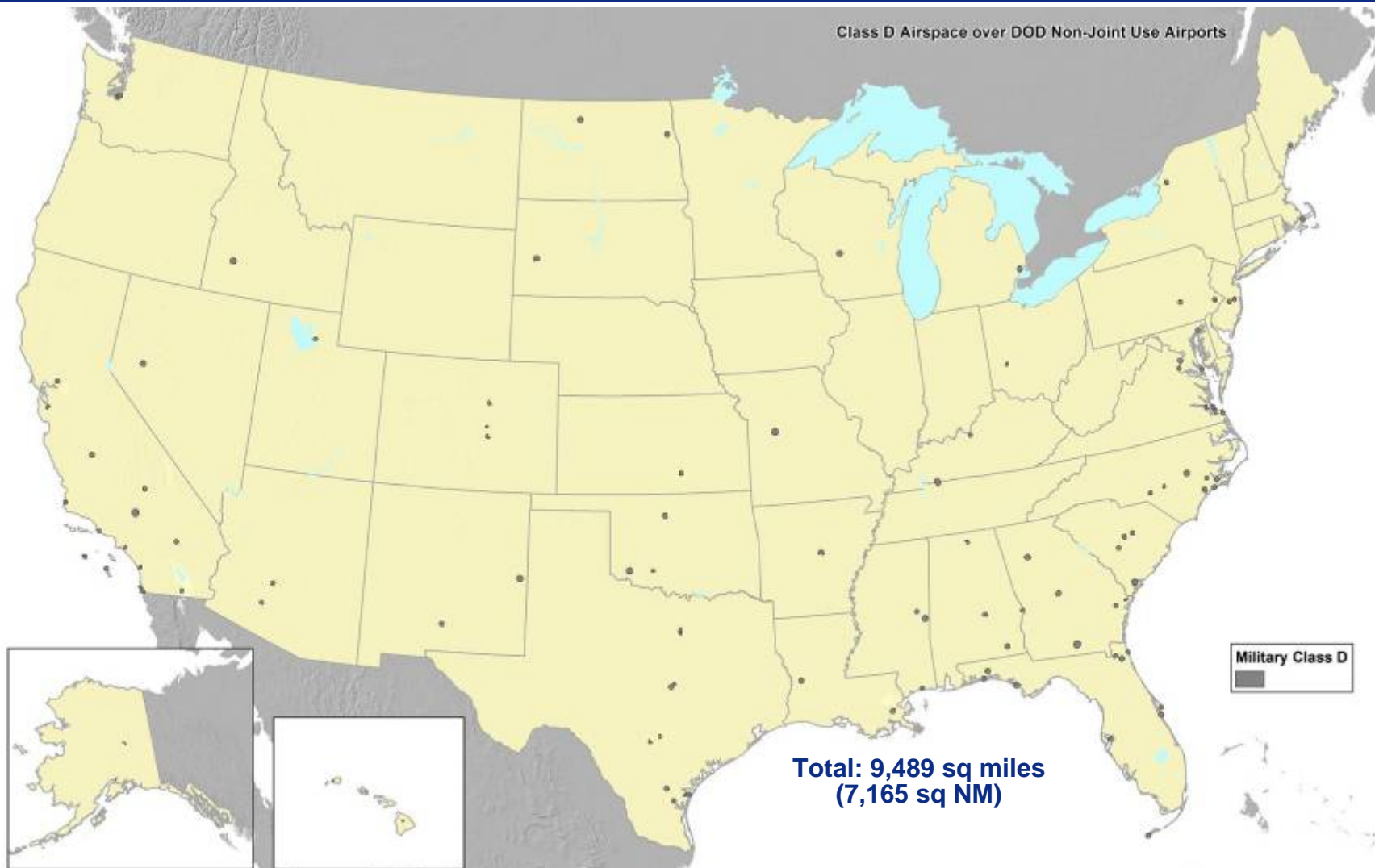


Class G Airspace Over DoD Installations/Reservations





Class D Airspace Over DoD Non-Joint-Use Airfields





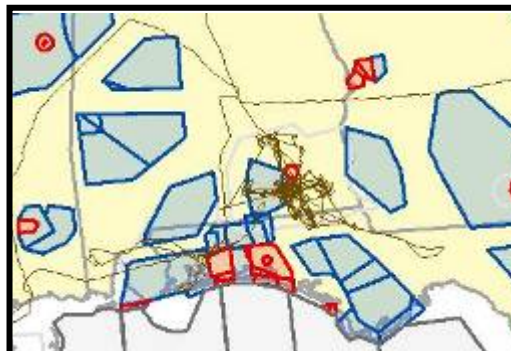
Areas of focus for the future

- Additional UAS access will require focus in four areas:



MIL-HDBK-516A

Airworthiness



Airspace



Operations



Technology



Airworthiness Standards

- **DoD has been certifying/flying aircraft for decades**
 - **Test/validation/certification built into procurement process**
 - **For UAS, DoD has developed certification tiers matched to intended use**
 - 1) **Capable of flight in the civil environment**
 - 2) **Combat/Restricted airspace only**
 - 3) **Small/Experimental (55 lbs or less)**





Airspace Rules

- Adapt existing airspace rules developed for manned aircraft in all classes of airspace for which the DoD is responsible
 - Class C, D, Restricted/Warning Areas, etc
- Tailor rules to integrate UAS and manned aircraft





Operational Rules

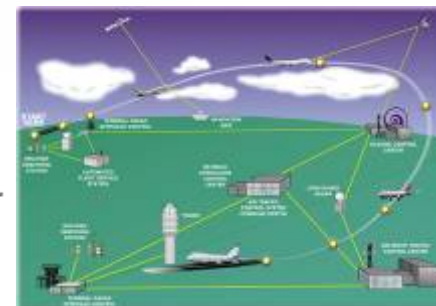
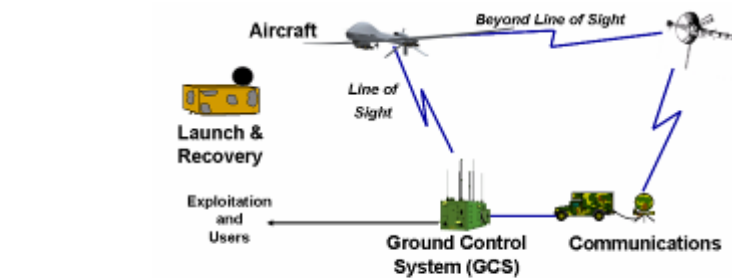
- Flight Rules/Procedures/phraseology standards
- UAS operator qualification/certification standards
- Medical qualification standards
- Tiered approach: from segregation to integration





Technology

- As we continue to mature our certification, airspace, and operational rules processes, there will still be gaps between what we can do and what we need to do
- Many UAS's will need to be capable of similar levels of safety as manned systems across the entire spectrum of NAS





UAS NAS Access Requirements

Summary

- **Way ahead is not complicated -- but technology will be complex**
- **Same approach to UAS as DoD has had for manned aircraft**
 - **Understand our mission requirements**
 - **Qualify/certify aircraft/operators to meet those requirements**
 - **Normalize UAS policy/procedures**
 - **Aggressively pursue technology to fill requirements gaps**





Back-up



Current UAS Process/Ops

Draft Class D Procedures

- **COA will be required but will be specific to the airfield**
 - **All DoD UAS at that location share a single COA**
- **Per DoD/FAA Memo of Agreement:**
 - **Procedures will be developed in coordination with FAA**
 - **Ops will not be conducted over populated areas**
- **Provisions:**
 - **Compliance with Service regs/applicable FARs required**
 - **Only for DoD and contract ops conducted solely under DoD direction**
 - **All DoD UAS must have an airworthiness statement; commercially procured require FAA Airworthiness Certificate**
 - **DoD shall notify ATC to provide approach control service; LOPs to address normal, emergency and contingency ops**
- **Procedures:**
 - **Deconfliction accomplished by C2 measures; all UA on designated ATC freqs**
 - **Deconfliction of UA and nonparticipating traffic accomplished with altitude restrictions, visual holding points with specific lateral and vertical limits, use of ground observers or other locally determined procedures**
- **Provisions to develop departure, arrival, normal operations and emergency procedures**